MARINE REVIEW.

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The Late Capt. Christopher D. Goulder.

Capt. Christopher D. Goulder, who died in Cleveland on Friday, the 9th inst., was among the few pioneers who were engaged in sailing lake vessels before the canal was cut through to Lake Superior. Although he has lived in retirement in Cleveland for about twenty years, he was well known among men identified with marine interests. By birth Capt. Goulder was an Englishman, and at the time of his death was in his eighty-first year. He was born in Norfolk, going to sea at the age of eleven years. In his early manhood he came to this country, entering the service of the North American Fur Company. In 1837 he became master of a lake vessel. He first settled in Detroit, coming to Cleveland in 1845. His sons are Harvey D., Charles and Robert F. Goulder of Cleveland.

Iron Ore Sales—Freight Matters.

Vessel owners and dealers in iron ore have done a great deal of talking during the past few days about ore sales and matters pertaining to next season's business. The discussion was started by the announcement that Mr. E. C. Pope, representing the Metropolitan Land and Iron Company, which controls the Norrie mine, had sold some ore for next season's delivery. Rumors that a very large block of Norrie ore had been covered at 80 cents to Sept. 1 or Oct. 15 from Ashland, by vessels of the Minch, Johnson and other fleets represented in the office of Palmer & Co., followed the report of sales, but upon careful inquiry it was found that on account of differences as to the number of months during which the ore was to be carried, no lake freight contracts had been made. Mr. Pope says that his company has sold some ore—not a large amount—for next season's delivery. The sale was made, he said, with reasonable certainty of securing an 80-cent lake freight rate. It is generally understood among the ore dealers that the amount sold was 60,000 or 70,000 tons; that the purchasers are the Chenango Valley Steel Company of New Castle, Pa., in which W. E. Reis, who was one of the first of the furnace men to purchase ore a year ago, is the leading spirit, and that the price is $2.75 a ton, or 75 cents less than the three-and-a-half dollars figure, for which Carnegie held out in 1893, and which was then considered the low water mark in the iron ore business of Lake Superior.

Only a few of the largest mining companies can do anything in the iron market on a basis of $2.75 a ton for Bessemer ore, and if the business this year is to be done on such a basis, it will be a hard blow to the Missabes, as well as many of the companies on the older ranges that will be entirely shut out. But the proposed 80-cent freight rate from the head of Lake Superior is the feature of most importance to vessel owners. That the sellers of this ore could have covered it at 80 cents with vessel owners who would agree to tie up a limited amount of tonnage to Sept. 1, there is no question. Neither can it be said that vessels can not carry ore at 80 cents from the head of Lake Superior with a small margin of profit, or even at 70 cents and come out even under probable slight reductions in operating charges. But the number of vessels that can carry ore at 80 cents from the head of the lakes is certainly less than 40 per cent. of the fleet engaged in the business, and for this reason it is safe to say that unless conditions change materially for the better there will be very little contracting in ore for the next season. Brokers are so advising their customers, and many of them who are, of course, willing to take commissions and place the vessels of their customers at the low rates that now seem probable, are nevertheless free in admitting that they will not engage their own tonnage at the proposed figures. In single trips last season a great deal of ore was certainly carried at a loss, and vessels without contracts for the coming season may be compelled, to a certain extent, to do the same thing again, but the practice will not be so general. Boats that were kept in commission last season with the hope that the next trip would bring something better than the one preceding it will be tied up without hesitancy when there is no probability of coming out even by running.

THE LATE CAPT. CHRISTOPHER D. GOULDER.

No positive information is to be had about the lake freight contract covering 100,000 tons or more of ore which the Milwaukee Tug Boat Line has carried in past seasons from Escanaba, but it is still generally believed among vessel men that this ore will be carried next season by the vessels of the Inter-Ocean Transportation Company of Milwaukee, and that the rate is 60 or 62½ cents. It may be interesting to note, in connection with the talk now going on about freights, that the average daily wild rates last season were 56 cents from Escanaba, 71 cents from Marquette and 77 cents from ports at the head of Lake Superior. These averages of wild rates do not, however, represent the cost per ton at which all ore was carried from the shipping points designated. It was learned last fall, for instance, by obtaining from all shippers engaged in business at the head of Lake Superior their average rate and number of tons shipped, that the average freight per ton, contract and wild, on all ore shipped from Ashland and adjacent ports was 94 cents. M. M. Drake of Buffalo is understood to have taken some of the ore here referred to for the steamers America, Brazil and Maytham at 80 cents.

Engines and Boilers of the New American Liners.

According to the latest information from Philadelphia about the machinery of the new American Line ships being built by the Cramps, the quadruple expansion engines, of which there will be two sets in each boat, will have six cylinders and four crank shafts, and the arrangement of the cylinders is in this wise: On the forward crank there will be a high and low pressure cylinder, the small cylinder being placed over the large one; on the second crank will be the first intermediate cylinder, on the third crank the second intermediate and on the fourth crank will be another high and low pressure. This design, with the proper disposition of the cranks, permits of almost perfect balancing of all the reciprocating parts, and gives a splendid and even turning motion. These engines will, of course, be the largest engines ever constructed in this country, and a total horse power of 22,000 is now claimed for each ship. All the large forgings, such as crank shafts, cranks, connecting rods, crossheads and piston rods, are being made of compressed fluid steel at the works of the Bethlehem Iron Company, South Bethlehem, Pa., as they are of such a size as to permit of being forged and finished only with the very largest tools.

The boilers are to be of 15 feet 4 inches in diameter, and as the working pressure is to be 200 pounds, they had to be made of 1 9-16 inch steel plates, a thickness which it was claimed by English journals could not be obtained in boiler plate in this country. But the boilers are under way and will be ready for the ship by the time she is launched. A part of the boiler plate was rolled by the Carbon Steel Company of Pittsburg. It is expected that one of the ships will be ready for service in the spring of 1895.

Lake Light-Ships.

The light-house board evidently intends to transfer the light-ship which was on Poe reef, Straits of Mackinac, last season, to Peshtigo shoal, Green bay, as soon as a new vessel can be secured for Poe reef. The latest report of the board says: "There is a bill now pending appropriating $25,000 to establish a light-vessel on Poe reef. The establishment of this light-vessel was authorized by the act approved on Feb. 14, 1893. If the appropriation thus called for is made at an early day the vessel that is built with it can be placed at Poe reef and the light-vessel now there can be transferred to Peshtigo shoal, where it is much needed."

The board has little regard for the small light-vessels at the Lime-Kilns and Ballard's reef, Detroit river, as shown by the following paragraph from the annual report: "The light-vessel now at Ballard's reef and the two vessels marking each end of the Lime-Kiln crossing, Detroit river, were built and outfitted from the appropriation of $8,600 made by the act approved Aug. 5, 1892, for Detroit river light-vessels. They are mere scows, being nearly as wide at the ends as they are amidships, measuring 42 feet in length, 13 feet 7 inches in breadth, and 3 feet 8 inches deep. Each has a trunk cabin, shows its light from a tripod, and has a crew of two men. They replace private light-vessels of much the same size, shape and cost. It is hoped that they may be made to last until they can be replaced by vessels better fitted for the purpose and approaching more nearly to the standard of the light-house establishment."

Looking to the Lakes for Machinery.

The Dominion Coal Company, Limited, of Boston, a concern capitalized at $20,000,000, of which $12,000,000 is said to have been paid in, has entered into negotiations with some of the manufacturers of coal handling machinery and coal buckets on the lakes, with a view to placing orders for equipment in this line to be used in Nova Scotia. This is the company which has purchased large tracts of bituminous coal lands in Cape Breton, Nova Scotia, expecting to find a profitable market for their product in New England states as a result of the proposed removal of the tariff on coal. The Ludlow Manufacturing Company of Cleveland is reported to have secured an order for patent bottom dump buckets to be used in the newly developed mines. The corporation is certainly a very big one, and a large amount of machinery, mainly of the kind used in handling soft coal on the lakes, will be needed at its mines and docks if the enterprise is carried out on the scale proposed.

Consul General Ingraham at Halifax says in a recent communication to the state department that the cost in 1893 of Cape Breton coal at mines' ports, which are all within twenty-five miles of the respective mines, was: Screened, $2.50 per ton of 2,240 pounds; run of mine, $1.80; slack $1.10. These figures are subject to a discount of 5 cents per ton for 1,000 tons and over, 10 cents per ton for 5,000 tons and over, and 15 cents per ton for 10,000 tons and over. Coal freights from Nova Scotia to New England during the past four years averaged $1.90 a ton on the small quantity shipped, which was mostly in sailing vessels. With improved methods of handling this coal and large steam vessels for carrying it, the projectors of the big New England scheme expect to reduce materially the cost at Atlantic seaboard cities. Miners in the Cape Breton district were paid last year 42 to 55 cents a ton for mining.

Electric Light-Ships are Costly.

The light-house board is evidently not very well satisfied with its experience with the electric light-ship at Cornfield point, Long Island sound. One of the light-ships built by F. W. Wheeler & Co. of West Bay City, Mich., for coast service was, it will be remembered, fitted with a plant which enabled it to show electric flashing lights. The boat has now been at its station on the sound for more than a year, and the latest annual report from the board contains a statement from Capt. W. S. Schley, U. S. Navy, inspector of the third light-house district, relative to the operations of the electric light. From this statement, which is published as an appendix to the report, the board concludes that the experiment has been a "physical" success but it costs more to maintain the vessel than is desirable. Efforts are being made to simplify the machinery in the interest of economy.

Ship Building Notes.

A report from Milwaukee regarding the annual meeting of the Goodrich Transportation Company, says that the directors considered the advisability of building a new passenger and freight steamer for service between Chicago and Milwaukee, the Indiana, now on that line, to be placed on the northern runs. The new boat will be much after the style of the Indiana, and if satisfactory arrangements can be made with some firm of builders it is expected to begin work on her in the spring. Last year's officers and directors of the company were re-elected.

The Collingwood Dry Dock and Ship Building Company of Collingwood, Ont., will build a tug for J. C. Noble of that port. The boat will be 110 feet over all, 20 feet beam and 9 feet hold, and will have steeple compound engines 15 and 26 inches by 22 inches stroke, with a Scotch boiler 9 feet 6 inches diameter by 11 feet 6 inches long, allowed 110 pounds of steam.

Benjamin Campbell, Charlevoix, Mich., is building a tug 85 feet over all, 17 feet beam and 9 feet molded depth; engine 18 by 18; boiler 7½ by 12 feet, allowed 140 pounds steam.

The Grand Haven Ship Building Company, Grand Haven, Mich., has modeled a small pleasure steamer for Mr. Pillsbury, Muskegon, Mich.

R. C. Brittain, Saugatuck, Mich., has put down a 65-foot tug hull.

Oliver Hepburn, Toledo, O., will build a yacht for C. D. Potter.

U. Grant Grummond, who is to take charge of the wrecking and tugging business of the Grummond estate, Detroit, was in Cleveland last week renewing acquaintances among vessel owners.

A Patent Attorney's Defense of the Whalebacks.

EDITOR MARINE REVIEW: I have observed in several recent issues of your paper, in articles signed by "Fairplay," a number of statements in connection with whaleback vessels and the invention thereof by Capt. McDougall. Some of these articles not only ignore the magnificent work of Capt. McDougall in developing a new field in the direct face of the most adverse criticism and in placing upon the great lakes and the coasts a type of vessels that is destined at no distant day to play even a more important part than at present in the freight and passenger trade, but go so far, not merely by inuendo but by direct assertions, as to impugn the sincerity of Capt. McDougall's motives in this development; in other words, your correspondent would have it understood that whaleback vessels did not originate with Capt. McDougall but that their construction has been known for many years and is public property, therefore not patentable. I do not know what motive "Fairplay," has in making these assertions, and it would be impossible to suppose that ex parte statements such as these could in any way affect Capt. McDougall, but in order that the public mind may not be misled as to these matters, I beg you will give me sufficient space in your paper to briefly reply to your correspondent.

So far as I can gather, "Fairplay" asserts, first, that Capt. McDougall was not the inventor of the whaleback vessels, and, second, that such vessels are not patentable, being public property. Having had charge of the patent business of the American Steel Barge Company since its inception, and my father, the late Col. George W. Dyer, having taken out all of Capt. McDougall's patents prior to that time, I feel that I am in as good a position as any one to state the correct facts as to these matters.

The first statement, that Capt McDougall was not the inventor of the whaleback vessel is absolutely incorrect. It is a matter of record in the patent office that as long ago as 1880 the modern whaleback barge, steamer and passenger boat were clearly and fully developed in his mind and were represented in models. This fact has been supported by proof and the patent office has conceded that such vessels were fully developed at that time. I do not mean to be understood as saying that every individual feature of whalebacks was original with Capt. McDougall, since other vessels have been made showing some features in common therewith. For example Ericcson's Monitor was made without superstructure, Jules Vernes' Nautilus and torpedo boats were provided with rounded decks, and other vessels have been made with elevated cabins; but because these features are old individually it does not follow that they are not new and patentable collectively. As you probably know, all inventions consist of new combinations and arrangements of old elements and this is the rule, the exceptions being insignificant. In other words, an inventor who combines in one harmonious whole the best features and elements that his experience has met with warrants as much and even more credit and is a greater benefactor to the public than the inventor who strives to be original in everything. Instances in which this fact is apparent are almost innumerable, but one of the most important may be mentioned, namely, the Bell telephone. This invention consists simply in the combination of an old metallic diaphragm with an equally old electro-magnet, but no one would insist for a moment that because these elements are old individually their combination together was not an important and extremely valuable invention that well merited the protection it received not only from the patent office, but from the courts also.

The true criterion of invention is not originality but usefulness. If we knew nothing whatever of time pieces and some original genius were to suggest and develop the modern watch, any one who endeavored to insist that because cog wheels and springs are old, that therefore the completed watch was old, would occupy almost as extremely precarious and unstable a position as your correspondent in the present case. This is precisely the case with whaleback vessels in which a completed structure is produced capable of performing work that no other vessels have accomplished and in which all the elements combined materially support and co-act with each other. For instance, by making the vessel without superstructure and with a rounded top and bottom, all the strength of a cylinder is produced with its large cubical capacity; at the same time, by making a hull of this kind the load line is necessarily very high so that ordinary cabins would be almost immediately washed away; it is therefore necessary that the cabins should be elevated above the hull to overcome this objection, and by so elevating the cabins practically the entire top of the hull is clear in order that the water and waves may sweep over the same without causing the vessels to pitch and roll to any great extent. The fact that these vessels behaved in even severe storms in the magnificent manner with which you are no doubt familiar, is sufficiently conclusive proof that it was not merely selection but inventive ingenuity that produced them, even if you do not take into consideration those features which are characteristic of them and which are entirely novel and original, the most important being the spoon bow and the forward working deck mounted on a turret.

So far as the second assertion of your correspondent is concerned, namely, that the whaleback vessels are public property and therefore not patentable, the records of the patent office, which are open to the public, constitute an ample refutation of this statement. I need only say that these matters have been most carefully considered and every feature of novelty has been fully covered in not less than twenty-three patents in the United States and also by patents in all of the important countries of the world. I may further say that these patents have been generally respected by the public, and in fact I know of only one instance in which infringement has been committed and for the prevention of which active steps are now being taken.

Before closing this rather lengthy letter, I beg to say that the criticisms of your correspondent are only the continuation of an almost uninterrupted series of articles of this kind tending to disparage Capt. McDougall's efforts and dating back to the building of the 101. When that boat, cheerfully alluded to as "McDougall's Dream" was being constructed, the marine papers, almost without exception, scoffed at her practicability and predicted that she would "turn turtle" as soon as launched, and this opinion was shared in by government and naval experts. I can understand how that opinion could have been entertained at that time but I can not possibly conceive, after every prediction of Capt. McDougall's has been finally and successfully demonstrated, how your correspondent or any other person, looking at the matter from an unbiased standpoint, can possibly help according him everything that is his due.

Washington, D. C., Feb. 10. FRANK L. DYER.

The Richelieu Company—Canadian Marine.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ont., Feb. 15.—The annual meeting of the Richelieu and Ontario Navigation Company occurred in Montreal, and was decidedly tame. Some lively scenes were promised, but everything was calm. The total traffic receipts for 1893, according to the directors' report, were $610,971.65, the expenses $583,802.99, leaving a balance of $27,268.63. which, added to the balance of last year, $84,456 73, amounts to $111,725.39, out of which is appropriated for interest $29,183.88, accidents $19,259.33, net sundries $2,995.94, leaving still a balance to credit of profit and loss account of $60,286.24. The result of the past year's operations is disappointing, in comparison with the record of previous years. Officers were elected as follows: Michael Connolly, Montreal, president; William Wainwright, assistant general manager of the Grand Trunk Railway, vice president. Messrs. Joseph Louis of Quebec, F. C. Henshaw, Hector Mackenzie, C. J. Forget, Rudolph Forget, Alton F. Clark and W. R. Miller, Montreal, and James Swift, Kingston, were elected directors. The last five are new members and replace Messrs. N. K. Connolly, ex-president, and Thomas McGreevy, Jacques Grenier, John Patterson and W. G. Murray, all of whom have been identified with the company for many years. It is announced that the management is to be completely reorganized and the big concern put on a dividend paying basis. The following memorandum was shown the shareholders at the close of the meeting: Amounts expended for permanent improvement to the company's property in 1890, $49,647; 1891, $118,489; 1892, $197,171; 1893, $167,610; total, $532,917. This total includes the purchase of the Columbian, Carolina, Island Queen, Ellita and Boucherville. The amounts expended on ordinary repairs were: 1890, $53,253.74; 1891, $58,349.21; 1892, $73,756.88; 1893, $88,461.94; total, $273,821.77.

Mayor John Herald, M. D., of Kingston, had a pleasant duty to perform on Saturday night. In the council chamber, in the presence of many ladies and gentlemen, he presented Capt. James Fleming and Mate Stephen Tyo of the schooner barge Glenora with $150 in gold for their bravery and courage in saving the barge in 1892 from being driven ashore during one of the wildest gales ever experienced on Lake Superior. Three insurance companies interested in the vessel and cargo made up the purse, and it is given as an encouragement to sailors to use all possible efforts to save vessels. As soon as the Glenora reached a place of safety, Capt. Fleming secured an Indian guide and walked sixty miles to reach a telegraph office. He slept one night in the woods, wrapped in a blanket, with snow heaped up around him.

A new schooner, a sister ship to the Winnipeg, launched last spring, is nearing completion at the Montreal Transportation Company's ship yard. Over 150 men are steadily employed on the vessel. Another barge is to be begun at once. It is expected that this barge will be ready to launch some time in July. Outside of barge building, a hundred or so men are engaged repairing barges and doing odd jobs. At present 250 men are in the employ of the company.

It is reported that the schooner Singapore has been purchased by Capt. Sam. Malcolmson of Hamilton. Capt. C. Hinckley, Kingston, has purchased the steamer Nichols. Capt. William Dix will again command the schooner Dunn, and has already made timber charters to occupy all his time next summer.

The Herreshoffs of Bristol, R. I., are under contract to build a steam yacht for a prominent resident of Montreal. It is to have a speed of fourteen miles, and will be handsomely fitted. It will be 79 feet in length. The draught will be four and a half feet. The yacht will have what is called a shovel nose stem instead of a bowsprit, owing to the inconvenience of the latter in passing through the locks of the canal.

One of the most interesting sights to a representative of the REVIEW on a recent eastern trip was that of black smoke rolling from the stacks of the big plant of Sternbergh & Son, at Reading, Pa. This company recently received an order for the rivets for the three gunboats building at Newport News, Va. This in addition to the order from the Cramps for 2,500 or 3,000 tons of rivets for ships in their yard at present, indicates that the Sternbergh rivet has special qualities of value for ship construction.

The Struggle in the Ore Business.

According to the best information that can be obtained by ore dealers generally in Cleveland, some Norrie (Bessemer) ore has been sold at the very low price of $2.75 a ton on dock at Ohio ports. With great reductions in labor and rail freights and the minimum of lake freight, this price certainly leaves only a very small margin of profit for the greatest mine in the Lake Superior region, and in fact in the world. As a result, some very important questions are raised regarding the iron ore business. The sale would seem to bind the company controlling the Norrie to make the same price to its customers generally, and there is considerable interest in knowing whether it is the intention of the management to work their big property to a full output at such a figure. Will the transaction establish a price for standard Gogebic Bessemers, and if so, what will be the effect on the Missabe ores, which must sell for about $2.50 in a market based on $2.75 for the standard Bessemers? These are questions that are creating considerable discussion in iron mining circles. Putting Missabe royalties as low as 40 cents, rail freight at 80 cents, lake freight at the same figure, and commissions, etc., at 15 cents, the total is $2.15, which would leave, at $2.50 a ton, but 35 cents to cover cost of mining and profit. But there is, of course, no certainty of an 80-cent lake freight, and no mining company can well take the chance of speculating on such a possibility. Evidently the largest of the ore companies, and especially those having royalties to pay, have a future before them as perplexing as that which has fallen to the lot of the vessel owner. The opinion long ago advanced by experienced mining men, that values have all along been held too high on the Missabe, seems to have been well founded, and the freeze-out of the Merritts on the new range may after all have been at a cost that will cause the Rockefeller interests to wait a few years for returns. As against the Norrie and the Minnesota company, the latter also owning mines on the new range and having its own railway and ships, the Rockefeller combination will not only suffer the disadvantage of being limited to a low percentage in the proportion of its ore that will be demanded by furnace men, but will also be compelled to meet very low prices. The output of the Missabe next season will form an important part of the entire production of Lake Superior ores, but it will not be measured by the capacity of mining plants as was the case in 1893.

Coming Races on the Sound.

There will be some exciting races on Long Island sound before the summer passes away, or else all signs will fail. The race between the Richard Peck, built by the Harlan & Hollingsworth company, and the newest Fall river boat is still remembered by those interested, and although it is not generally known the new twin-screw passenger steamer Lowell, building by the Bath Iron Works, is contracted to beat the Peck. As the requirements necessary to beating the Peck are well known, the Lowell might be expected to have clear sailing, but the Priscilla is to be put on the Fall River line in June, and from all accounts she ought to be the fastest paddle wheel steamer in the world—just how much faster than her predecessors can not be said, but she will no doubt eclipse the Peck and therefore future honors for speed on the sound will be a matter of contention between the Lowell and Priscilla.

The particulars of the Lowell are: 320 feet keel, 336 over all, 49½ beam, 66 over guards, and 13 feet draught, with tonnage of 2,400; six boilers 12 feet 10 inches by 13½ feet; engines, two triple expansion, 26, 40 and 14 by 36 inches; horse power 4,600; estimated speed 23 miles per hour.

Particulars of the Fall River liner Priscilla, built by the Delaware River Iron Ship Building and Engine Works and engined by the W. & A. Fletcher Co., are: 424 feet water line, 440 over all, 52½ beam, 93 feet over guards, 12½ feet draft, 4,550 tons displacement; engines, double inclined compound, with two high pressure cylinders of 51 inches, two low pressure of 95 inches, and a stroke of 11 feet, turning 35 foot wheels; ten boilers, 14 by 14½ feet, fitted with Serve tubes; horse power 8,000. Will the Priscilla make 25 miles?

Lake Superior Mining Institute.

F. W. Denton of Houghton, Mich., secretary of the Lake Superior Mining Institute, announces that the second annual meeting of the institute will be held at Houghton, beginning Wednesday, March 7. Members will meet at the Michigan mining school building in East Houghton at 3 P. M., Wednesday, where an opportunity will be given to see the school equipment and to become acquainted with the local members of the institute. The first session of the institute will take place Wednesday evening at the Armory opera house in Houghton. Excursions to points of interest will be made on Thursday and Friday. The meeting will last until noon Friday. Following are some of the papers: "Sinking C shaft, West Vulcan" by Captain Wm. Bond; "Diamond Drill Holes" by J. Parke Channing; "Ore Dressing on Lake Superior" by Prof. F. F. Sharpless; "Some new Geological Sections of Keweenaw Point" by Dr. L. L. Hubbard, state geologist of Michigan. A paper will also be read by H. V. Winchell and it is probable that still other papers will be presented. Underground and Stamp Mill views will be shown by means of a projecting lantern.

Mr. Farwell's Nicaragua Scheme.

Mr. Jesse H. Farwell of Detroit has had printed in a small pamphlet an open letter recently addressed to the president on the subject of the construction of the Nicaragua canal. He suggests that the president proceed to secure possession of the Maritime Canal Company's grant from the state of Nicaragua and let the contract for the completion of the work at the earliest day possible. On the claim that the present currency system of the country is defective, Mr. Farwell would reach two great aims with one act. He says: 'Let the canal contractors take their pay in government bonds, principal payable in one hundred years in gold; interest payable to steady holders of the bonds every six months in gold, at the rate of 2 per cent. per annum; bonds convertible, at the will of the holder, on any day during the whole one hundred years—principal and interest computed to the first day of the month of conversion—into a treasury note, convenient for circulation at all the principal points of the nation; the treasury note to be reconvertible into the bonds with equal convenience." This is the scheme of finances. The balance of the letter is devoted to details regarding it and to a summary of the advantages to be derived from the construction of the canal. President Cleveland's answer has not as yet appeared.

A Visit from President Uhler.

President Uhler, chief officer of the Marine Engineers' Beneficial Association in the United States, is about to visit all of the branches of the association around the lakes. There are twenty-five or more of them and Mr. Uhler's task will not be an easy one, although he is certain of a warm reception among the lake engineers who hold him in high esteem. He will be in Cleveland Tuesday and will undoubtedly be welcomed by a very large gathering of members of the local organization.

Following are the directors and officers of the American Steel Barge Company, elected at the annual meeting in New York: Directors—Colgate Hoyt, Capt. Alex. McDougall, A. D. Thompson, Samuel Mather, James Colby, Joseph Colby, Capt. Thomas Wilson, J. B. Colgate and Frank Rockefeller; president and treasurer, Colgate Hoyt; vice-president, J. B. Colgate; secretary, R. C. Wetmore; general manager, Capt. Alex. McDougall.

Tips From the Man on the Dock.

It being apparent that the movement to combine for holding tonnage off the market to save expenses or for establishing a minimum rate will fail to materialize, it is also apparent that each vessel owner must act independently. The most sagacious of that honorable fraternity, many of whom were badly pinched last season, fooling with rates so low they could hardly be seen with the naked eye, will not feel inclined to repeat their experiences. John Doe will refuse to cut the rate below what will yield a small profit; he will allow Richard Roe to burn his fingers again if he wants to, and to hold his vessels for loads, with crews aboard eating up the next freight in toto. But Roe will not do it; he likewise sees the necessity of better rates and for economy. Although the proposed combination has failed, some of the results anticipated through it are being experienced in the firmness of owners acting individually, each in his own interest.

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A much better feeling, however, is manifest. It would not be surprising if, after all, vessel owners should be able to keep their tonnage fully employed. See the following extract from the memorial of the Duluth and Superior harbor improvement commission, referring to prospects at those ports:

"There is now every indication that the shipments and receipts for 1894 will be 25 per cent. greater than last year; in fact the new coal docks being erected and the Missabe iron ore shipments alone will make that increase a certainty. This extra freight is virtually in sight and will bring up tonnage receipts and shipments for 1894 to 8,000,000 tons."

* * *

The cheapness and magnitude of the stocks of grain left over for probable chance of being needed abroad, and the immense volume of lumber in sight to be moved, are factors which will materially assist iron ore, coal and other commodities in backing up freights. But for all this, the high-low cunning vessel owner can sneak in and take a cheap thing if he is so inclined.

Around the Lakes.

Sullivan & Hubbard of Toledo have dissolved partnership.

W. J. Olcott, who has been selected to manage the mines of the Rockefeller syndicate on the Missabe range, is a son of Prof. H. Olcott of Ishpeming, Mich., and is well known in Lake Superior mining circles.

Mr. W. E. Mack of Mack, Nye & Co., Cleveland ore sales agents, will go to California shortly to remain two or three months. Mr. Mack lost his wife a short time ago and has not since been disposed to activity in business matters.

In view of the probability of vessels being laid up during a portion of the coming season, some owners are preparing to hire their captains by the month, which means, of course, that even the chief officers will not be paid while vessels are in ordinary.

Managers of Chicago tugs are again bidding for business among vessel owners in the principal lake cities. Edward Lynn, agent of the Indep ndent line, is said to have offered to do the towingof Detroit owners at 60 per cent. off the regular tariff of rates.

N. Mills and Capt. T. A. Ellery of Marysville, Mich., have closed a contract with Love & Scofield for a boiler for the propeller J. E. Mills. The boiler will be 6½ feet in diameter by 12 feet long. The boiler coming out of the J. E. Mills will be placed in the propeller Point Abino.

There are seven shipping docks with coal pockets at the port of Buffalo, with a daily average shipping capacity of 27,500 tons and average pocket capacity of 36,800 tons. Just outside the city limits there are stacking trestles of about 650,000 tons storage capacity in all.

Capt. William Carlisle, who died Monday morning at his home in Brooklyn Village, one of the suburbs of Cleveland, was born in Glasgow, Scotland, and came to this country in 1861. He sailed the Winslow schooner Delaware and steamers Cormorant and Wall during five seasons but was of late in the employ of Capt. Thomas Wilson of Cleveland, sailing the Hiawatha, Wallula, Yakima and Yuma. Pneumonia was the cause of death. Capt. Carlisle was a member of the Shipmasters' Association.

Officers and directors of the Mitchell Transportation Company of Cleveland, elected Tuesday, are: President, Capt. John Mitchell; vice-president, Philip Morris; secretary, William F. Sauber; treasurer, Capt. Alfred Mitchell; directors, Capt. John Mitchell, Capt. Alfred Mitchell, Thomas Fitzpatrick, William F. Sauber and Philip Morris.

A new lumber company, in which Nelson Holland of Buffalo and Temple Emory of East Tawas are interested, is to erect a big lumber plant on a tract of land embracing nearly 100 acres with a mile of water frontage on Tawas bay. The plant will include two large sawmills, with a combined capacity of nearly 300,000 feet a day, a mill that can turn out 150,000 shingles in ten hours, two salt blocks and wells, a dry kiln and a big general store. There will be six docks, with tramways to the mills, and three booms capable of holding 7,000,000 feet of logs. The company is now engaged in logging 70,000,000 feet of logs on Georgian bay and owns a very large tug to transport these logs across the lake.

In General.

Compressed gas is being introduced for motive power in river boats on the Seine.

W. E. Ludlow of Cleveland has been appointed consulting engineer of the Dominion Coal Company, Limited, of Boston.

Walter M. McFarland, past assistant engineer U. S. Navy, has an article in the February number of the Engineering Magazine on the "Fastest Cruiser in the World," the Columbia.

From present indications the question of draft will be a matter of importance in the new Northern line ships. Engines and boilers now going into the first boat are putting her down quite deep.

Ship building prospects all through Great Britain are brighter than for several years past. Important orders from the admiralty, as a result of a new naval programme, have had most to do with the improvement.

It would seem from Washington dispatches that a commission, consisting of Lieut. Commander Sperry, Constructor Hibbs and Engineer White, has been appointed in the navy department to examine and report upon the propriety of constructing a man-of-war on the whaleback principle or remodeling one of the old ships on that plan. This explains Capt. Alex. McDougall's dealings of late with the department.

Baltimore furnishes a story to the effect that two extraordinarily designed boats of aluminum are in process of secret construction there, for the purpose of an arctic expedition to be conducted by the Chicago Herald. It is said that the boats will be ready for delivery March 28, and they will be shipped overland to northern Russia, whence a party of explorers will start in them to intercept the Peary expedition.

Messrs. Denny, shipbuilders, of Dumbarton, Scotland, have for some time adopted a scheme of awards, by which they grant to the workmen in their yards a sum of money for suggestions for improvement in plant, appliances, etc., likely to facilitate or cheapen production. During the year 1893 thirty-eight awards were made, amounting to about $700. Since the introduction of the scheme 602 claims have been received, 313 being successful and 289 rejected. The total sum expended has been $7,105.

Another passenger steamer for the Old Dominion (Atlantic coast) Line, the Yorktown, was launched from Roach's ship yard, Chester, Pa., last week. The boat is a sistership of the Jamestown, built for the same line and launched in December last. She is 342 feet over all, 40 feet beam and 26 feet 9 inches deep. The engines are triple expansion, with cylinders 38, 44½ and 73 inches diameter and 54 inches stroke. The propeller is of manganese bronze, 16 feet diameter and 21 feet 6 inches pitch. The boilers, four in number, are of the cylindrical return tubular type, 12 feet 6 inches long and 13 feet 9 inches diameter, constructed for a working pressure of 180 pounds. Windlass and capstan were furnished by the American Ship Windlass Company, and pumps by the Blake Manufacturing Co.

IF YOU SEND 50 CENTS TO THE MARINE REVIEW, NO. 516 PERRY-PAYNE BUILDING, CLEVELAND, O., AND YOU ARE NOT SATISFIED WITH THE BOUND VOLUME OF FIFTEEN PHOTOTYPES OF LAKE STEAMERS THE MONEY WILL BE REFUNDED TO YOU.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

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The books of the United States treasury department contain the names of 3,761 vessels, of 1,261,067.22 gross tons register in the lake trade. The lakes have more steam vessels of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of steam vessels of 1,000 to 2,500 tons on the lakes on June 30, 1893, was 318 and their aggregate gross tonnage 525,778.57; in all other parts of the country the number of this class of vessels was,on the same date, 211 and their gross tonnage 314,016.65. The classification of the entire lake fleet on June 30, 1893, was as follows:

Class.	Number.	Gross. Tonnage.
Steam vessels	1,731	828,702.29
Sailing vessels	1,205	317,789.37
Canal boats	743	76,843 57
Barges	82	37,731.99
Total	3,761	1,261,067.22

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	Number.	Net Tonnage.
1889	225	107.080.30
1890	218	108,515.00
1891	204	111,856.45
1892	169	45,168.98
1893	175	99,271.24
Total	991	471,891.97

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

	St. Mary's Falls Canal.			Suez Canal.		
	1892.	1891.	1890.	1892.	1891.	1890.
No. vessel passages	12,580	10,191	10,557	3,559	4,207	3,389
Ton'ge, net regist'd	10,647,203	8,400,685	8,454,435	7,712,028	8,698,777	6,890,014
Days of navigation	223	225	228	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

FIGURES relative to the tonnage built and owned on the lakes, which are kept standing on this page, are again revised in accordance with the latest reports from the United States commissioner of navigation. It is certainly a matter of considerable pride to again note that 62.6 per cent. of all the tonnage of merchant vessels of 1,000 to 2.500 tons in this country is owned on the lakes. The number of ve-sels of this class owned on the lakes is 318 and the tonnage 525,778.57 tons, while in all other parts of the country the number of such vessels is only 202 and the tonnage 314,016.65 tons. There are also on the lakes nineteen vessels of 2,500 tons and over, which, added to the 318 vessels of 1,000 to 2,500 tons gives a total of 337 vessels of 1,000 tons and over. As the aggregate tonnage of these 337 vessels is 578,156.13 tons, the average is 1,715.6 tons. This is the business fleet of the lakes—three hundred and thirty-seven vessels of seventeen hundred tons each—and there is certainly nothing like it on fresh water elsewhere in the world.

COMMANDER HEYERMAN, who was in charge of the United States cruiser Kearsarge when she was lost off Roncador reef, Central America, a few days ago, is the naval officer who was turned down by the light-house board and afterwards sent to sea by the navy department, on account of his support of Col. William Ludlow, corps of engineers, United States army, in the differences that arose over the lighting of St. Mary's river. Col. Ludlow, who has since been honored by being appointed representative of the United States army in the American legation at London, will certainly extend sympathy to Commander Heyerman and join the vessel interests of the lakes in hoping that investigation will show that the loss of the Kearsarge was not due to fault on the part of her commander. It may not be out of place here to add that there were no feelings of regret expressed among lake vessel owners upon the announcement, this week, that Engineer Secretary Mahan of the light-house board is to be transferred to Mobile, Ala.

IT may as well be admitted that there is now no possibility of bringing about an agreement among vessel owners whereby any concerted effort will be made to lay up any portion of the lake fleet or otherwise attempt to maintain profitable freights during the coming season. Refusal on the part of the ore companies owning boats to join in the scheme was the main cause of failure in the movement. There was little if any inducement held out to these ore companies to follow such a course. It is certain, however, that when paying freights are not offering, many boats will be held in ordinary next season. Few vessels will be run at a loss from trip to trip with the hope that "something better will turn up later," as was the case quite generally during a portion of last season.

SOME citizens of Chicago, with characteristic indifference as to the important lake traffic of that port, have made complaint to the light-house board about the fog whistle recently located on the outer breakwater. Complaints of the same kind were made from Buffalo, Cleveland and other lake cities immediately following the establishment of fog signals at these places, but the objection to them has gradually died out. An exception should not be made in Chicago's case, but as the complaint may be backed up by a lengthy petition, vessel owners should see that the light-house board is informed as to the great necessity of the best kind of a fog signal at Chicago.

IN the death of Congressman George W. Houck of Ohio, Dayton district, the shipping interests of the lakes have met with a serious loss. Although representing an inland Ohio district, Mr. Houck was an earnest supporter of all measures pertaining to the advancement of shipping, and as a member of the commerce committee of the house in the last congress he was largely instrumental in securing the passage of a bill authorizing for the lakes numerous lights, fog signals, etc., that will be constructed as rapidly as appropriations can be obtained.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Feb. 10, 1894:

	Wheat, bu.	Corn, bu.
Chicago	20,791,000	4,635,000
Duluth	10,197,000	128,000
Milwaukee	869,000	.....
Detroit	1,733,000	7,000
Toledo	2,923,000	1,308,000
Buffalo	2,023,000	588,000
Total	38,536,000	6,666,000

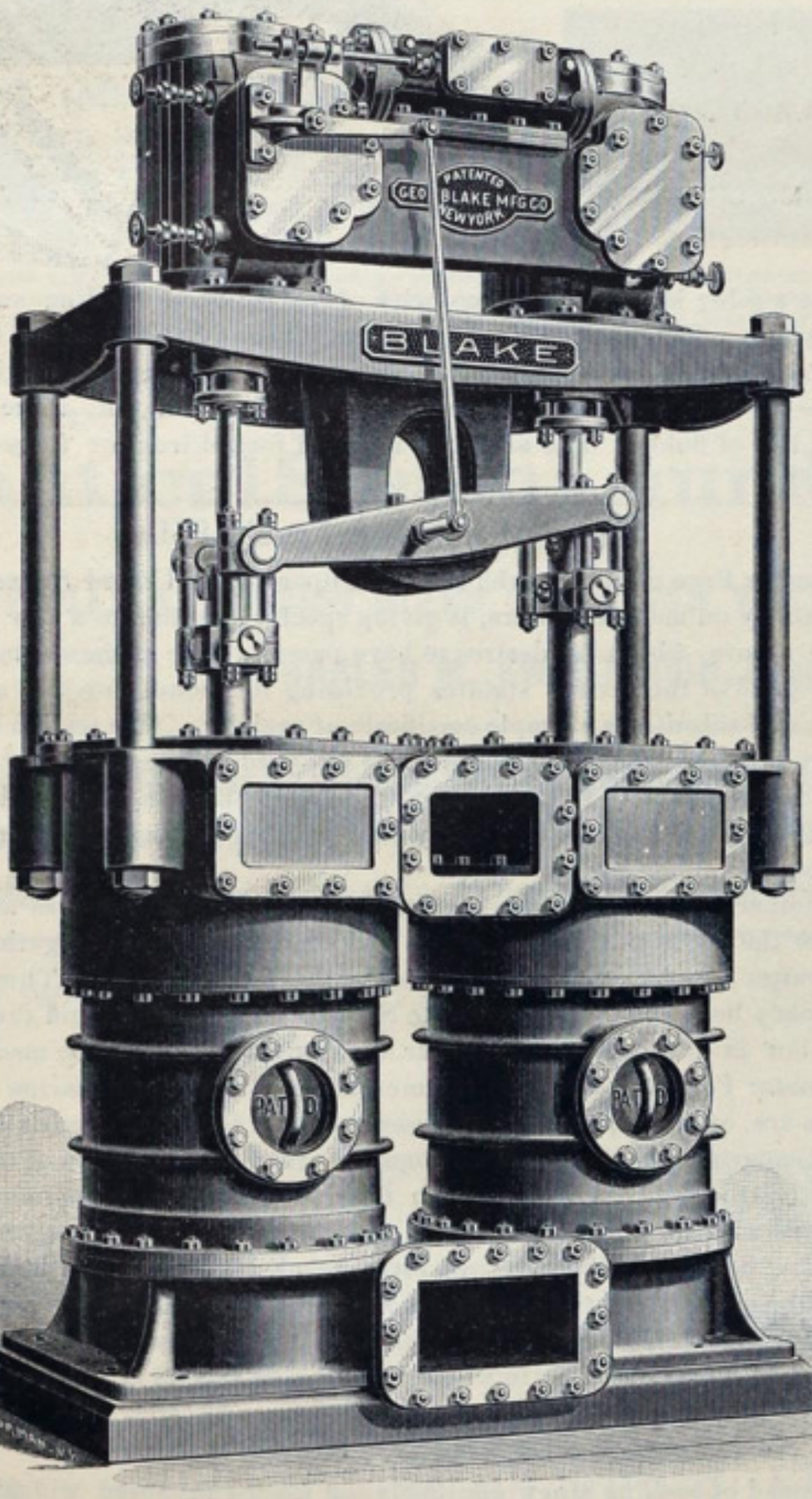
At the points named there is a net increase for the week of 165,000 bushels of wheat and 389,000 bushels of corn.

Lloyd's Will Class Iron and Steel Vessels.

Mr. William L. Prizer of the Vacuum Oil Company, has had some correspondence with the publishers of Lloyd's Register of British and Foreign Shipping on the subject of classifying lake vessels. In a letter of recent date, A. J. Dryhurst, secretary of the register says: "The question of including in the register book of this society vessels navigating the inland waters of North America has received consideration, and the next edition of the book will include all iron and steel vessels of more than 100 tons engaged in this trade. It is considered that to go further than this would unduly increase the bulk of the register book without advantage to the general body of subscribers."

Independent Air Pumps of the U. S. Cruiser Columbia.

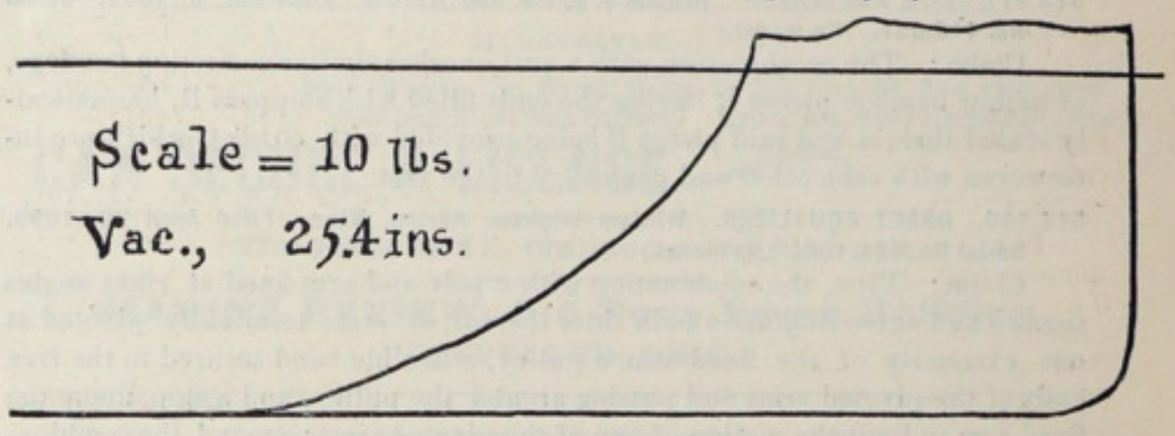
The accompanying engraving showing independent vertical air pumps of the United States cruiser Columbia will no doubt be interesting to many readers of the REVIEW, as attention has been called in previous issues to this cruiser and the remarkable speed she made on her sea trial. The air pump is of the well known Blake type, having vertical double-acting steam cylinders and vertical single-acting air cylinders. This arrangement has the advantages of minimum floor space and weight, which are very important features for sea-going vessels of all kinds, particularly for naval cruisers. These pumps are of the same pattern as those furnished the United States armored cruiser New York and the battleships Indiana and Massachusetts. The cruiser Minneapolis, a sistership to the Columbia, will also be provided with similar air pumps. On the trial trips of the Columbia and the New York, these air pumps showed the remarkable economy of less than one-quarter of 1 per cent. of the indicated horse power of the main engines, a result rarely, if ever, obtained before with any type of air pump, whether independent or connected. This high efficiency is obtained principally by the use of a perfected system of valve gear for



the steam cylinders, which controls the operation of the pump so perfectly that very few strokes or displacements are necessary to do a given amount of work. For instance, the average rate of speed of the air pumps on the trial trip of the Columbia did not exceed sixteen double strokes per minute when producing a first class working vacuum. The indicator diagram from one of the air cylinders, which also appears with this article, is almost an ideal card, both in vacuum forming qualities and in smoothness of action. This card also shows a remarkable amount of work done for each displacement.

This air pump has two double-acting steam cylinders, each 16 inches diameter by 21 inches stroke, and two single-acting air cylinders, each 31½ inches diameter by 21 inches stroke. Each air cylinder is provided with usual foot, bucket and head valves. A large round hand-hole plate in each air barrel admits of ready access to bucket and foot valves. Convenient hand-hole plates are also provided for the head valves, as also for cleaning out the casting that forms the base or suction box of the pump. The air cylinders and all their working parts are made entirely of composition, which is the usual practice in constructing such machinery for the United States navy. The piston rods of steam cylinders are of steel, as are also all of the working parts such as the walking beams, links, valve gear, etc. The valve gear is arranged so that the stroke can be readily adjusted, even while the pump is in operation, so that the pump can make a full and complete stroke at any speed desired. This feature adds very much to economy in steam used.

The Wm. Cramp & Sons Ship and Engine Building Company were so well pleased with both of these air pumps that they have decided to use them on the cruiser Brooklyn and the battleship Iowa, for which they were recently awarded contracts. The Geo. F. Blake Manufacturing Company have also



supplied the vertical feed pumps, fire pump and bilge pumps, in fact the complete outfit of pumps, for all of the above named vessels, and also for the cruisers Marblehead, Montgomery, Detroit, Chicago, Boston and Atlanta; gunboats Dolphin, Machias and Castine; battleship Maine; monitors Puritan and Miantonomah; ram Katahdin, and the dynamite cruiser Vesuvius.

Large Sailing Vessels.

"There are few sailing vessels that can carry 5,000 tons of cargo, and nearly all of them are in the California wheat trade," says the Boston Commercial Bulletin. "In eleven years sixteen 5,000-ton cargoes have been cleared from San Francisco in twelve vessels. One of these was a steamer and the other eleven were the ships Rappahannock and Shenandoah, built by Arthur Sewall, at Bath, Me., and the British ships Liverpool, Alice A. Leigh, Palgrave, California, Lord Templemore, Milton Stuart, Drumrock, Horensfeld and Manchester. The Rappahannock was lost in 1892, and the Shenandoah is now making her third voyage, the Palgrave and California having each sailed twice. The other American ships that carry 5,000 tons are the Sewall ships Roanoke and Susquehanna, they with the Rappahannock and Shenandoah forming the famous 'big four,' which marked the end of wooden ship building at the Sewall yards."

Signaling Devices.

Robert Ernschaw of Chicago is the inventor of an electric bell system of signals between pilot house and engine room, that is thus described by a trade journal of that city: There is a simultaneous display of signals to both sender and receiver. The unique feature of the mechanism is the automatic "set back," that is, after a signal is given and registered, the giving of the next signal first throws back the register of the former one before the new signal is displayed. The device could also be applied to elevators, etc., with advantage. The inventor is perfecting another device that will print in a fire and water proof box all signals to the engineer with the time, date and rate of speed attached, so if the vessel sinks, and the box can be secured, it will be positive evidence as to the fault causing the accident.

Trade Notes.

Parties likely to be interested in an automatic line-holding device should correspond with E. C. Akers & Bros., Port Huron, Mich.

A 20-page pocket brochure telling about the Metropolitan injector has been issued by the Hayden & Derby Manufacturing Company, 111 Liberty street, New York. A large number of the latest lake steamers are equipped with these injectors, and they are giving satisfaction. Send for a copy of the pamphlet, and see how this injector is constructed.

J. L. Alberger, who is known on the lakes in connection with the manufacture and sale of pumps and condensers, has patented and is manufacturing a live steam feed water purifier, which should be examined by lake engineers. He is located at Buffalo and has taken his son into a partnership. A catalogue descriptive of the new machine will be mailed to anyone applying for it.

Handy is the word that best describes the catalogue issued by Jenkins Bros., No. 71 John street, New York. It shows to advantage their valves in great variety. Do you know that their iron body valves have been improved as well as their discs and standard packing? This company was well represented by Charles W. Martin, Jr., at the national meeting of the Marine Engineers' Beneficial Association in Washington recently.

Reports of the number and capacity of pig iron furnaces in blast throughout the country on the 1st inst., as well as stocks sold and unsold on the same date, show practically no change in the condition of this important branch of the iron industry during the month. The reports are in fact a repetition of the figures that have ruled for several months, showing light production and little increase or decrease in stocks. It is generally expected, however, that as a result of some improvement in finished lines the furnace business will change somewhat for the better during the present month.

Illustrated Patent Record.

SELECTED ABSTRACTS OF SPECIFICATIONS OF A MARINE NATURE—FROM LATEST PATENT OFFICE REPORTS.

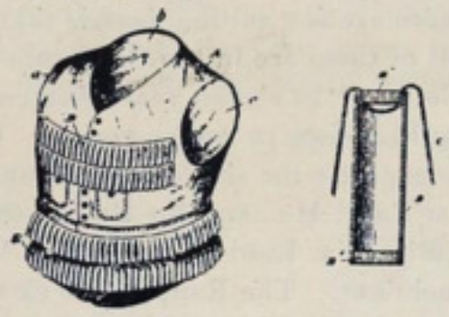
513,977. LIFE PRESERVER. William S. Beale, Van Wert, O. Filed Oct. 6, 1892. Serial No. 448,051. (No model.)

Claim: The combination with a vest or other similar encircling bandage, of hollow bamboo pieces B having the ends filled with stoppers B, hermetically sealed therein and said pieces B being provided with cords C which are interwoven with each other and connected to the vest.

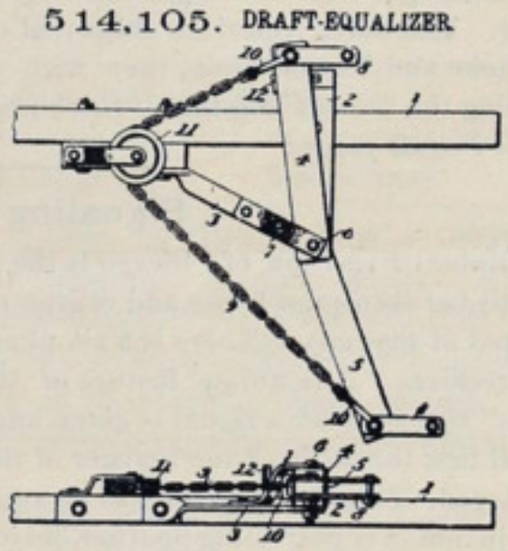
514,105. DRAFT EQUALIZER. William Wigham, Adrian, Minn. Filed April 20, 1893. Serial No. 471,106. (No model.)

Claim: First, the combination with a pole and arm fixed at right angles thereto and extending upon both sides thereof, of arms terminally pivoted at one extremity of the fixed arm, a pulley, a flexible band secured to the free ends of the pivoted arms and passing around the pulley, and a stop upon the fixed arm to limit the motion of one of the pivoted arms; second, the combination with a pole and arm fixed at right angles thereto, of arms of equal length terminally pivoted upon the extremity of the fixed arm, a pulley located behind and out of line with the pivot of the arms and contiguous to the pole, and a flexible band connecting the free ends of the pivoted arms and passing around the pulley.

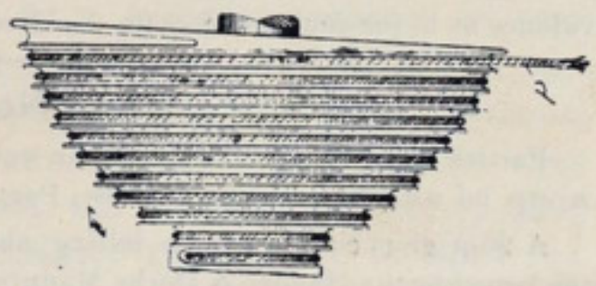
513,977. LIFE-PRESERVER



514,105. DRAFT-EQUALIZER



514,262. HOIST-DRUM



514,262. HOIST DRUM FOR DISCHARGE APPARATUS OF COAL OR ORE DOCKS. Daniel T. Denton, Lakeview, Minn., assignor to the Pettibone, Mulliken & Co., Chicago, Ill. Filed July 25, 1893. Serial No. 481,425. (No model.)

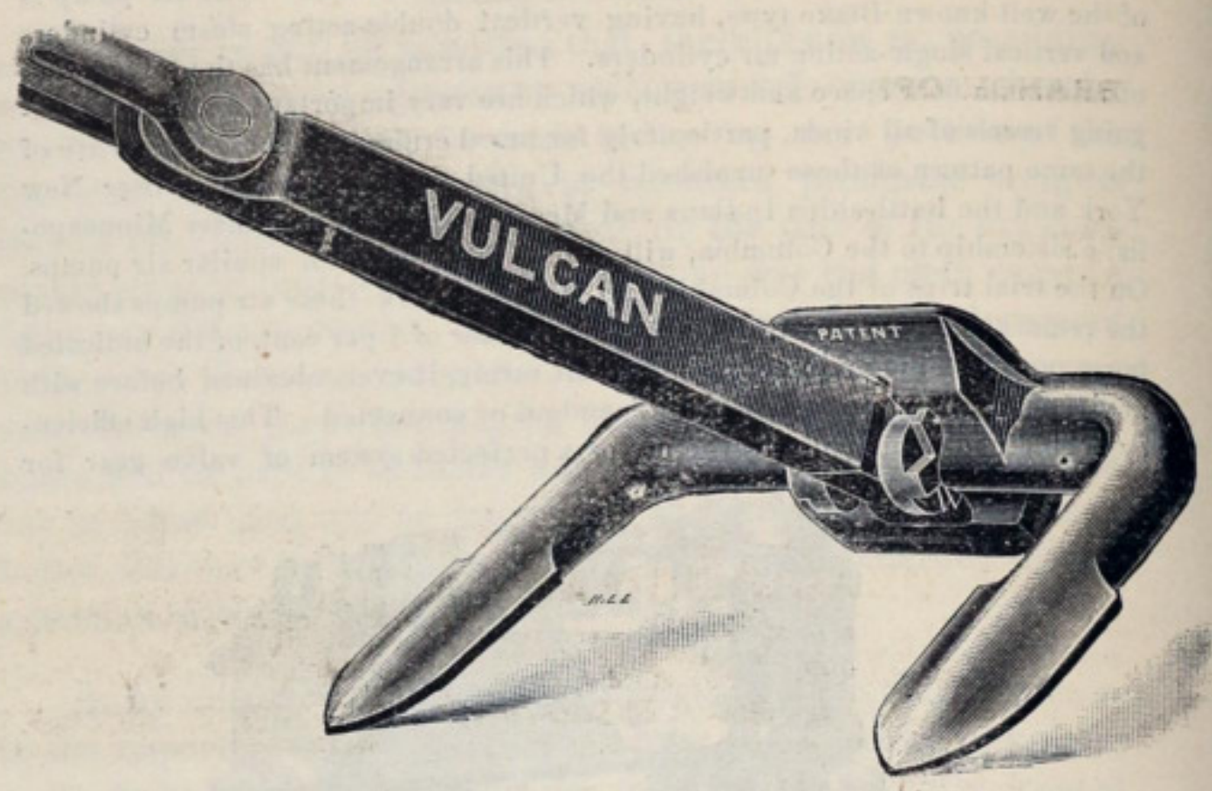
Claim: First, a drum for the pivotal chute hoist shaft of the hoisting mechanism of a coal, ore, or the like, dock, said drum tapering in one direction to its end and having a circumferential spiral groove with the distance between the centers of its adjacent sections decreasing in the direction toward the flaring end of the drum; second, a drum for the pivotal chute hoist shaft of the hoisting mechanism of a coal, ore, or the like, dock, said drum being approximately semi-spheroidal in shape and tapering toward one end and having a circumferential spiral groove with the distance between the centers of its adjacent sections decreasing in the direction toward the flaring end of the drum.

514,338. SURFACE CONDENSER. Oliver M. Row, Liverpool, England. Filed April 17, 1893. Serial No. 470,730. (No model.) Patented in England Sept. 8, 1891, No. 15,192.

In an apparatus for heating, cooling or condensing steam, water or other vapors or fluids, the combination with a suitable casing or container of one or more continuous tubes or pipes, the walls of which are pressed, or indented inward or toward each other, upon opposite sides of the tube at different points and in different radial lines, thereby forming in each tube a series of similar communicating sections, the lines of maximum diameter thereof lying in different directions, substantially as described.

Vulcan Stockless Anchor.

With the tendency towards the adoption of stockless anchors on the lakes, vessel owners are, of course, interested in the different types of anchor of this kind on the market. Although De Grauw, Aymar & Co. of New York are pushing the sale of the Tyzack triple grip anchor on account of its special advantages, this firm also has a very good stockless anchor in the Vulcan, illustrated herewith. The Vulcan anchor has met with extensive sale in Great Britain, and has the approval of Lloyd's committee. Among the advantages claimed for it are: Quick tripping and biting; flukes lie flat and snug against



the ship's side; simplicity and security of parts; good holding surface and broad palms. This anchor stows in ordinary hawse holes, and the trip being in line with the shank when holding, does not counteract penetration of the flukes. As it is impossible for the crown bolt to work out, there is safety against loss of flukes. The anchor is made of forged iron or forged steel as required.

Some of Senator Frye's Bills.

Senator Frye of Maine, who is looked upon in the United States senate as an authority on marine matters, is giving special attention to a few bills of a marine nature, which he desires to have passed. One of these aims to repeal section 4,145 of the revised statutes providing for bonds for the registry of vessels, and substitutes a simple certificate of registry. One section of the new measure provides "that no bonds shall be required on the licensing of yachts; no licensed yacht shall engage in any trade nor in any way violate the revenue laws of the United States; and every such yacht shall comply with the laws in all respects."

Another bill authorizes the secretary of war to prescribe rules and regulations for the use of any and all canals and similar works of navigation that are or hereafter may be owned or operated by the United States. This authority has already been granted in regard to St. Mary's Falls canal and the St. Clair canal, but in the opinion of the war department it ought to be made general.

Senator Frye will also push the measure providing for a marine board, but chances are, of course, against the passage of this important legislation in the present congress. Collectors of customs now furnish certificates of title to vessels without charge. This has been the case since 1886 when numerous fees connected with the shipping business were abolished. The treasury department has, however, several times recommended the re-establishment of this fee, on the ground that the certificates are for the benefit of private persons. Mr. Frye has introduced a bill with this end in view and has included it among the several measures to which he will give special attention.

Legislative Matters.

Instead of seeking a new appropriation for the proposed widening of the Lime Kilns crossing from 440 to 600 feet, an effort will be made to have the money left over from the 20-foot channel appropriation applied to this work. This course was decided upon at a meeting of the legislative committee of the association in Buffalo a few days ago, and in view of the general tendency to cut down river and harbor appropriations it would seem to be a wise policy. It will be remembered that the appropriations for the 20-foot channel work were very largely in excess of the aggregate of contract prices at which the work was taken by dredging companies last fall. About $1,500,000 will, it is thought, be available from the balance on the big channel appropriation.

The Lake Carriers' committee also decided at its meeting to oppose a bill recently introduced in congress providing that every steamer of 1,000 tons and over shall carry not only two licensed engineers, if run over ten hours a day, but also an assistant or oiler with each engineer.

Merchant Ships for War Purposes

Not more than thirteen steamers at present receive from the British government an annual subvention. They are the Campania, Lucania, Majestic, Teutonic, Etruria, Umbria, Aurania, Victoria, Himalaya, Australia, Arcadia, Oceana, and Britannia; many of the others belonging to the same or other owners, being only held at the disposal of the admiralty, as vessels which have complied with the desired conditions of sub-division by transverse bulkheads.—Nautical Magazine.

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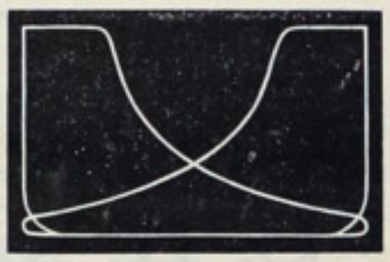

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U. S. ENGINEER OFFICE, 34 WEST CONgress Street, Detroit, Mich., February 9, 1894. Sealed proposals for (A) Excavation within Coffer Dam; (B) Building Cribs within Coffer Dam; and (C) Mitersill Valves; for the 800-ft. Lock, St. Mary's Falls Canal, will be received at this office until 2 P.M., March 12, 1894, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application. O. M. POE, Col., Corps of Engineers, etc. 3-1

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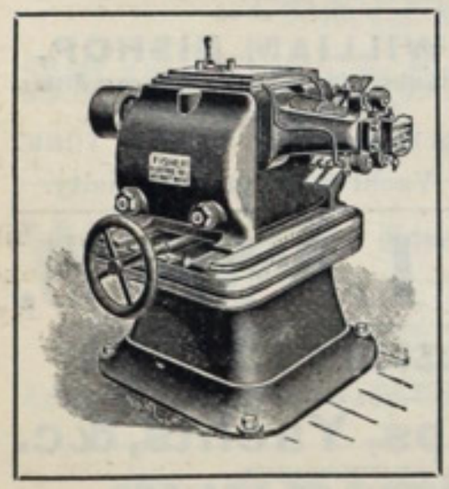

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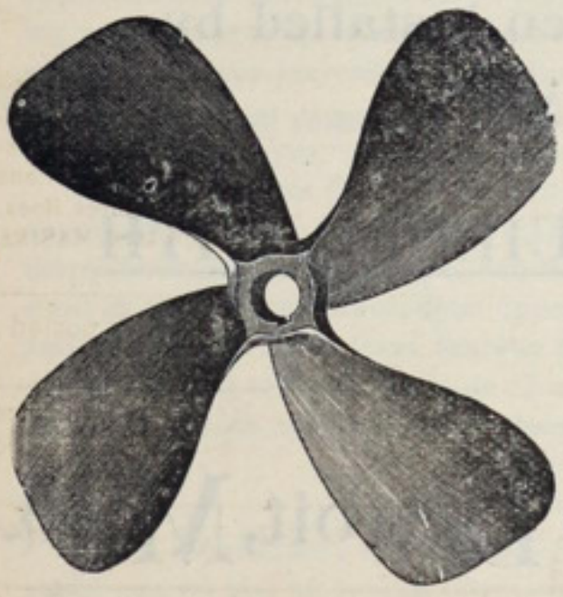

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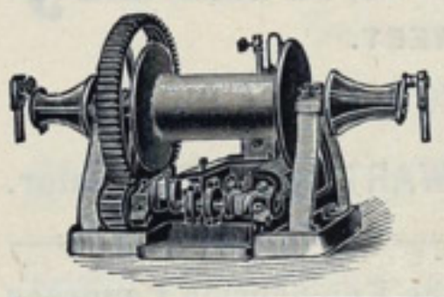

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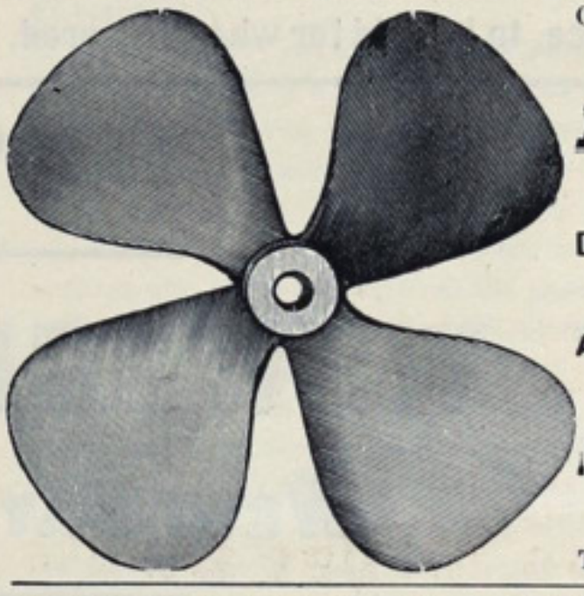

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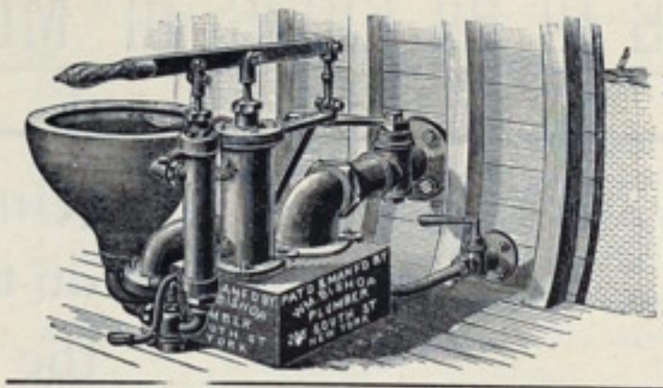

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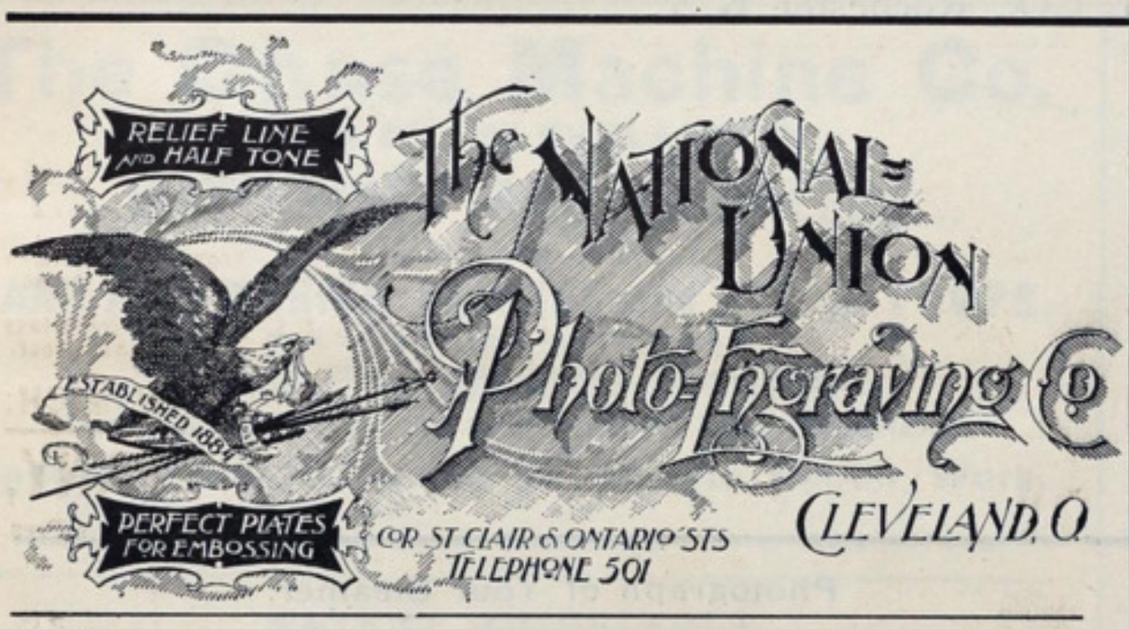

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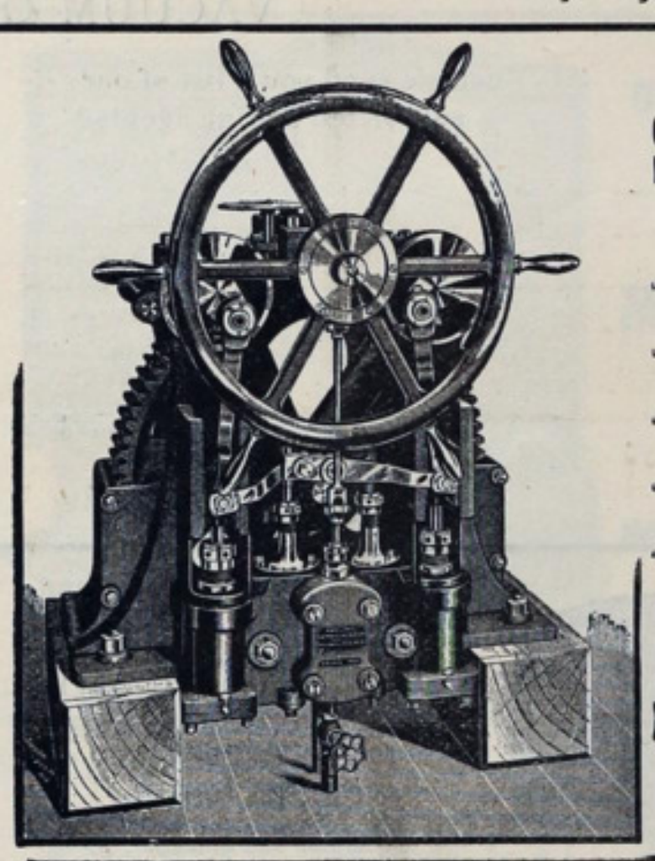

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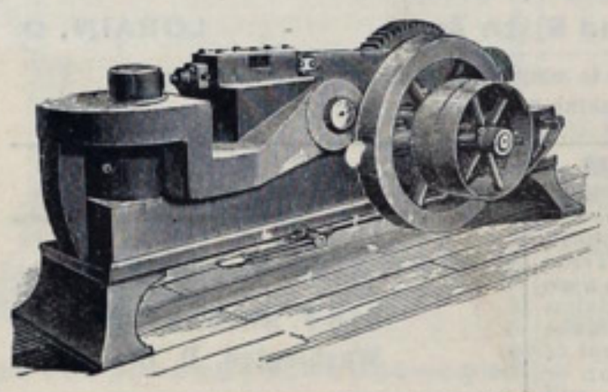

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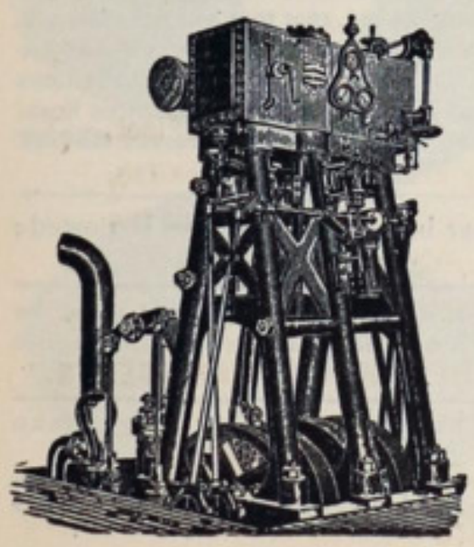

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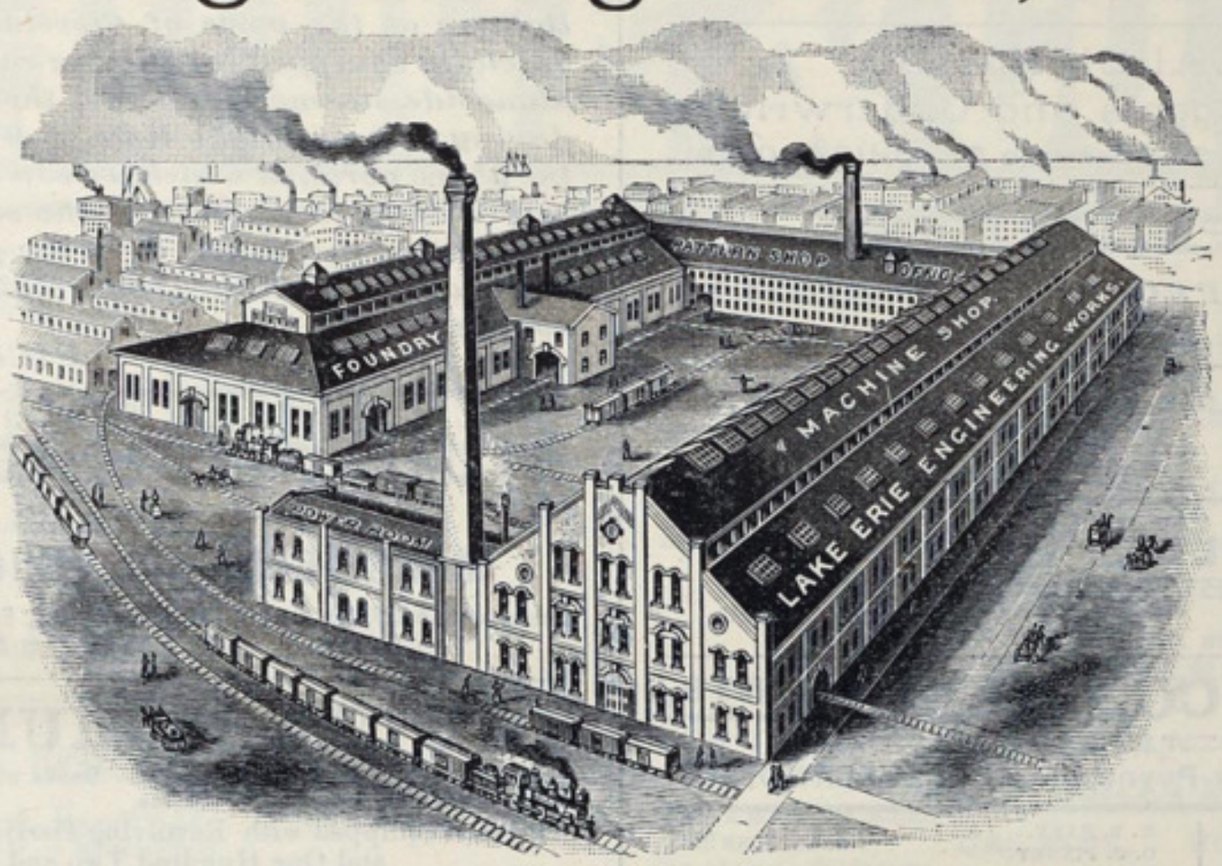

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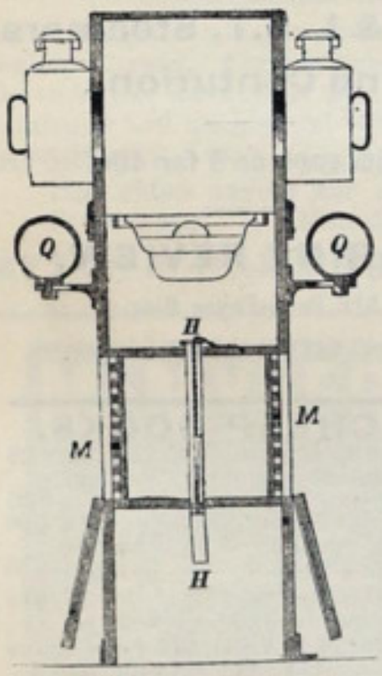

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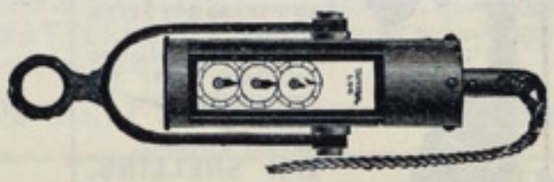

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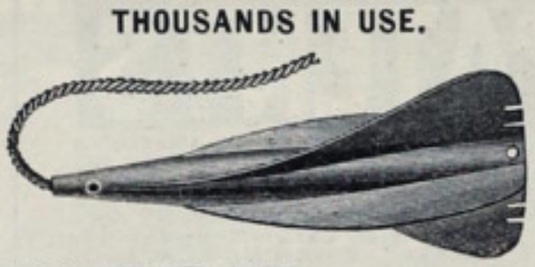

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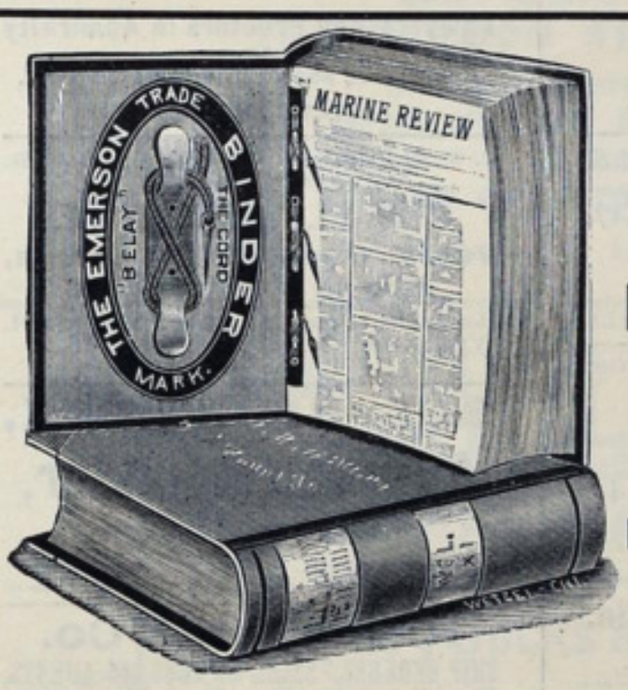

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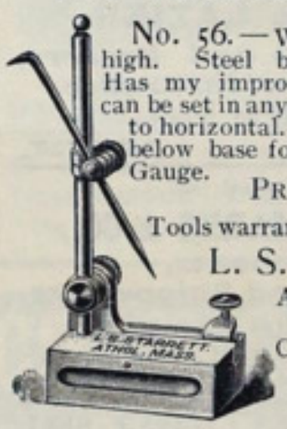

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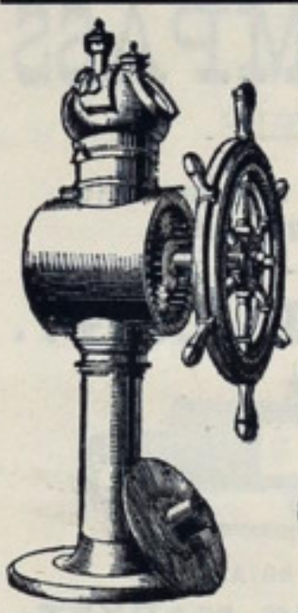

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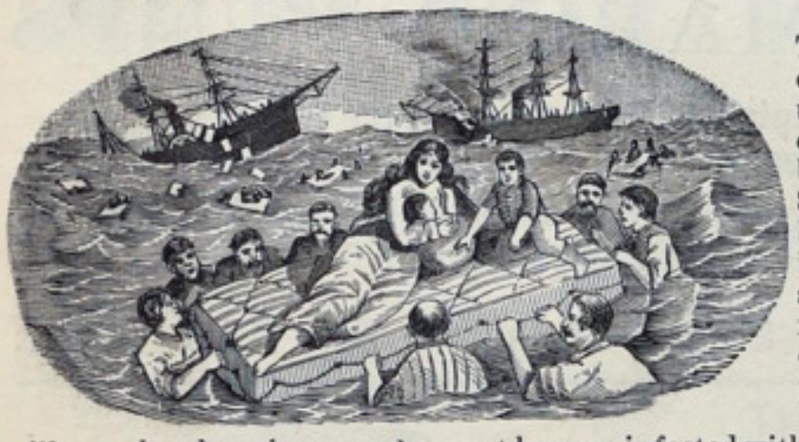

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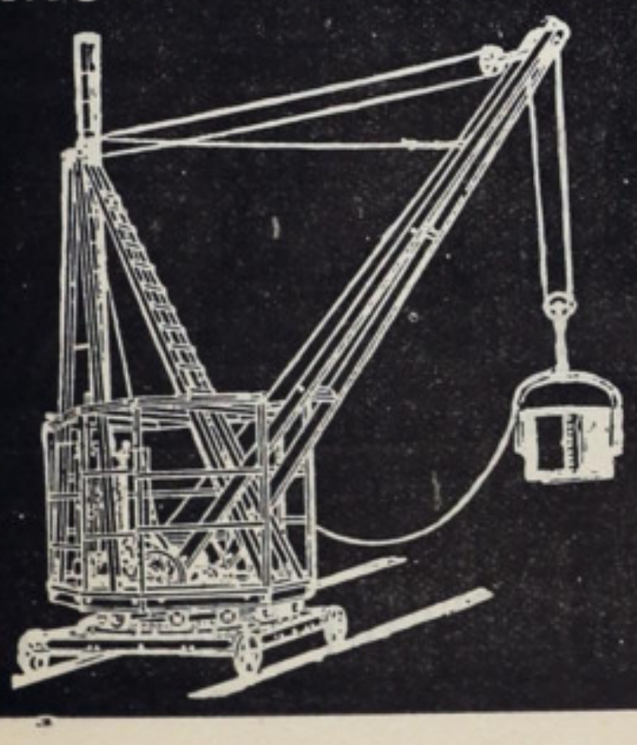

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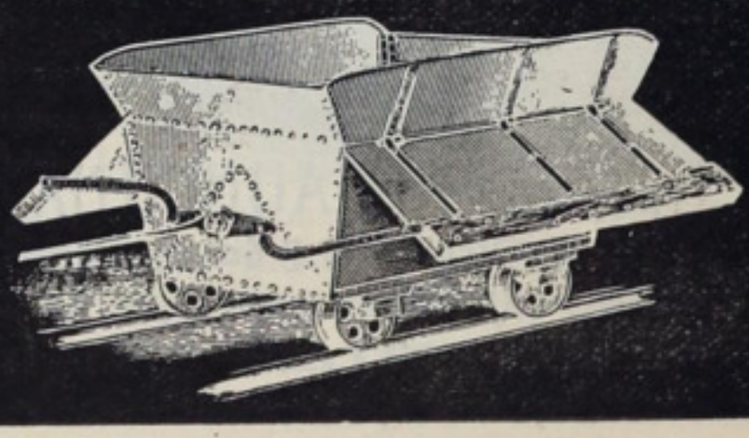

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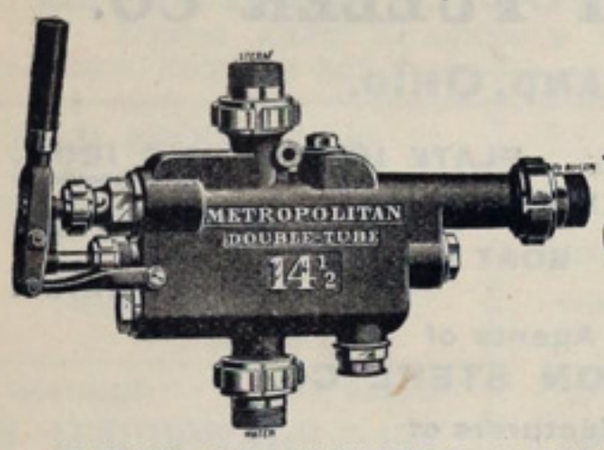

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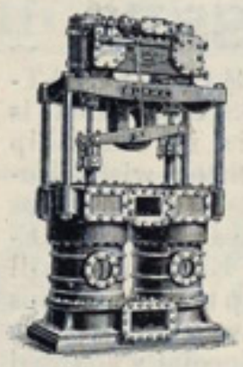

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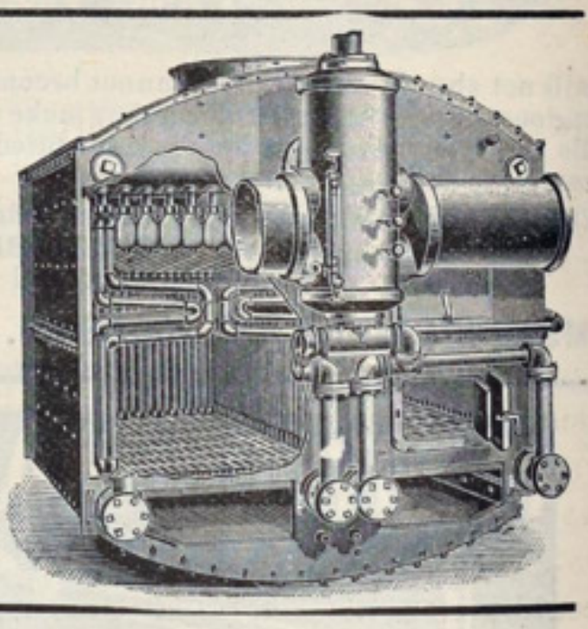

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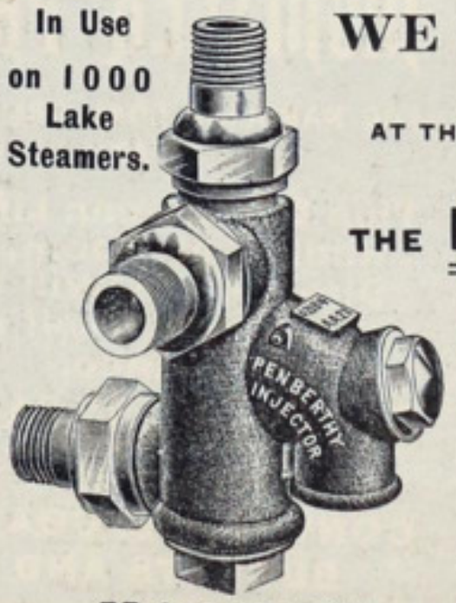

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